

Appl. No. 10/092,579
Amdt. Dated July 11, 2005
Reply to Office Action of April 14, 2005

REMARKS/ARGUMENTS

Applicant gratefully acknowledges the thorough Examination to date and has made an effort to fully respond to all of the issues raised by the Examiner. Applicant has taken care and believes that no new matter has been introduced by way of this amendment. Reconsideration of the application in view of the above amendments and following remarks is respectfully requested.

Claim Objection

The Examiner has objected to Claims 7 and 21, under 37 C.F.R. 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous Claim, as Claim 7 covers the same subject matter as Claim 6, and Claim 21 covers the same subject matter as Claim 15. Applicant has amended the Claims to delete Claims 7 and 21 from the set of Claims. Therefore, Applicant believes that the objection is now overcome.

Specification Objection

The Examiner has objected to the Specification for failing to provide proper antecedent basis for the claimed subject matter as there is no mention of the following phrases "determining the remaining path to be traversed..." in Claim 13, and "creating a communication channel between proxies" in both Claims 15 and 21, respectively.

In order to overcome the objections to Claims 13, 15, and 21, Applicant has amended the Specification at pages 5 and 8 respectively. The Specification has been amended at page 5, paragraph [00015], to read as follows: "once a given proxy is seeded it can determine which path to take to make a proxy connection between a client and a device, i.e., determine the remaining path to be traversed for the given proxy". This amendment is made in support of the original teachings of Claim 13 which describe further determining a remaining path to be traversed for a given proxy which was also similarly taught in the original paragraph [00015] by teaching "determine which path to

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take to make a proxy connection...". Therefore, the amendment made to paragraph [00015] does not constitute the addition of new matter. In addition, Applicant has amended page 8 of the Specification, at paragraph [00030] to read: "Therefore, the methodology of the present invention creates a communication channel between the first proxy 51 and the second proxy 52". The creation of a communication channel is clearly taught in paragraph [00030] with reference to the example shown in Figure 5, which teaches that a client accesses a second proxy to communicate with the device through a first proxy. Figure 5 also shows two arrowed lines which represent a "communication channel" between the first proxy and the second proxy. As Claims 15 and 21 also originally disclose the creation of a communication channel between proxies, the amendment to paragraph [00030] does not constitute the addition of new matter. Therefore, Applicant believes that the objections to Claims 13, 15, and 21, under 37 C.F.R. 1.75(d)(1), have now been overcome by providing in the Specification for the claimed subject matter.

Claim Rejections Under 35 U.S.C. 112

The Examiner has objected to Claims 1, 3, 5, 11, 12, 13, 15, 16, and 18 through 26, under 35 U.S.C. 112, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner states:

"Claim 1 recites the limitation "the path" in step (b) There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites the limitation "the client" in step (d) There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "the native device". There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the location of a device". There is insufficient antecedent basis for this limitation in the claim.

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There is insufficient antecedent basis for limitations found in other claims as well such as claims 5, 11, 12, 13, 15, 16 and 18-26."

Applicant has amended Claims 1, 3, 4, 5, 11, 12, 13, 15, 16, and 18 through 26 to provide proper antecedent basis in each instance where none was provided in the Claims. Therefore, Applicant believes that the amended Claims now distinctly claim the subject matter which Applicant regards as the invention.

Claim Rejections Under 35 U.S.C. 102

The Examiner has objected to Claims 1, 7, 12 through 24, and 29 through 34 under 35 U.S.C. 102(b) as being anticipated by UK patent application, GB 2330991A, by Yeomans, hereinafter the '991 application. The Examiner substantiates the rejection by presenting rejections in relation to each of the rejected Claims in items 6 through 31 stated as follows:

"6. As to claim 1, the 991 application teaches a method for providing a proxy service in a computer network, comprising the steps of:

(a) receiving a request to access a device (Page 2 lines 1-13, the proxy server receives a request from a requesting computer to access a recipient computer),

(b) determining the path to the device (Page 4, lines 17-25, data is communicated using a datagram which comprise a header portion which contain the IP address of the source and the destination of the datagram),

(c) ascertaining what firewall rules exist for that given path (Page 4, lines 27-33, each router (which provides firewall functions) in the computer network comprises a routing table 260, which controls the admission of datagrams from source IP addresses on a first sub-network to destination IP addresses on a second sub-network), and

(d) redirecting the client to the appropriate proxy, if any is needed, for that path (Page 2, lines 15-20, the data packets sent from a source to a destination are forwarded to the proxy server instead of the destination).

7. As to claim 2, the 991 application teaches the method of claim 1 wherein the ascertaining step comprises the step of using a network inventory to describe the devices that are to be considered by the proxy

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(Page 4, lines 27-33, the routing table contains a list of source and destination devices and whether the request is from the source to the destination is originating from inside the intranet or outside the intranet).

8. As to claim 3, the 991 application teaches the method of claim 1 wherein the ascertaining step comprises the step of using device attributes apart from the native device IP address to select the device (Page 4, lines 27-33, the routing table contains a list of source and destination devices and whether the request is from the source to the destination is originating from inside the intranet or outside the intranet).

9. As to claim 4, the 991 application teaches the method of claim 1 wherein the ascertaining step comprises the step of using an inventory of devices to distinguish devices that have IP numbering or network conflicts (Page 5, lines 13-37, the source and destination of the datagrams, if a criteria is not met in the routing table then it is denied access otherwise it passes).

10. As to claim 5, the 991 application teaches the method of claim 1 wherein the ascertaining step comprises the step of using physical topology information to determine the location of a device (Fig. 2, Fig. 4, Fig. 5, Page 5, lines 13-37).

11. As to claim 6, the 991 application teaches the method of claim 1 wherein the ascertaining step comprises the step of using physical topology information to determine and discriminate between non-routable networks with conflicting address information (Page 5, lines 13-37, the routing table restrict access to some datagrams and allows access to others depending on whether they satisfy certain criteria).

12. As to claim 7, it teaches the exact same limitation as claim 6; therefore, it is rejected under the same rationale.

13. As to claim 8, the 991 application teaches the method of claim 1 further including propagating path information to proxies (Page 5, lines 13-37, the path that the datagram needs to traverse will be provided to the proxy server so that it will arrive at the proper destination).

14. As to claim 9, the 991 application teaches the method of claim 1 further including authenticating for the client (Page 6, lines 16-26).

15. As to claim 10, the 991 application teaches the method of claim 1 further including authenticating between proxies (Page 6, lines 16-26).

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16. As to claim 11, the 991 application teaches the method of claim 1 further including informing the remote proxy server of the client address (Page 5, lines 13-37, the proxy server is given provided with the source and destination addresses).

17. As to claim 12, the 991 application teaches the method of claim 1 further including informing the remote proxy server of the destination address (Page 5, lines 13-37, the proxy server is given provided with the source and destination addresses).

18. As to claim 13, the 991 application teaches the method of claim 1 further including determining the remaining path to be traversed for a given proxy (see table on page 5, page 5, the type of request facilitate the type of processing and ultimately the path that needs to be taken to reach the destination).

19. As to claim 14, the 991 application teaches the method of claim 1 further including a means of making proxy paths recursive (see table on page 5, page 5, lines 13-37, if similar multiple requests arrive they will be processed in a similar manner according to the criteria in the table; thereby making the proxy paths recursive).

20. As to claim 15, the 991 application teaches the method of claim 1 further including creating a communications channel between proxies (Page 1, lines 18-25).

21. As to claim 16, the 991 application teaches the method of claim 1 further including having an HTTP protocol request go from the client to the destination (see table on page 5 and page 5, lines 13-37).

22. As to claim 17, the 991 application teaches the method of claim 1 further including having an HTTP protocol response go from the destination to the client (see table on page 5 and page 5, lines 13-37).

23. As to claim 18, the 991 application teaches the method of claim 1 wherein when the service is performed, appear to the destination as coming from the source (Page 6, lines 28-33, the user terminal receives the datagrams with the fields marked as if they were sent directly by the remote server and not through the proxy server).

24. As to claim 19, the 991 application teaches the method of claim 16 further including maintaining authentication between client and proxy

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after the HTTP request has completed (Page 6, lines 28-33, In one part embodies the proxy server is integral to the router; thereby allowing the connection to remain between the proxy server and the user terminal over multiple TCP requests).

25. As to claim 20, the 991 application teaches the method of claim 17 further including maintaining authentication between proxies after the HTTP request has completed (Page 6, lines 28-33, In one part embodies the proxy server is integral to the router; thereby allowing the connection to remain between the proxy server and the user terminal over multiple TCP requests).

26. As to claim 21, the 991 application teaches the method of claim 1 further including creating a communications channel between proxies (see Fig. 1, page 3, lines 25-41).

27. As to claim 22, it teaches the exact same limitation as claim 15; therefore, it is rejected under the same rationale.

28. As to claim 23, the 991 application teaches the method of claim 1 further including having a TCP response go from the destination to the client (see table on page 5, Page 5, lines 13-37).

29. As to claim 24, it teaches the exact same limitation as claim 18; therefore, it is rejected under the same rationale.

30. As to claim 25, the 991 application teaches the method of claim 22 further including maintaining authentication between client and proxy after the TCP request has completed (Page 6, lines 28-33, In one part embodies the proxy server is integral to the router; thereby allowing the connection to remain between the proxy server and the user terminal over multiple TCP requests).

31. As to claim 26, the 991 application teaches the method of claim 23 further including maintaining authentication between proxies after the TCP request has completed (Page 6, lines 28-33, In one part embodies the proxy server is integral to the router; thereby allowing the connection to remain between the proxy server and the user terminal over multiple TCP requests)."

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Applicant respectfully submits that the '991 application does not disclose the present invention but rather is directed towards an apparatus for routing a data packet, or a datagram, received from a source on a first network to a destination on a second network, whereby the data packet is forwarded to a proxy server instead of the destination in the second network so that the proxy server may forward the data packet to the destination in response to the data packet satisfying certain predetermined criteria. The '991 application teaches that the forwarding means includes a routing table which stores such predetermined criteria, such as a source address of the first network, as taught at page 2 in the '991 application.

The '991 application further discloses at page 4, line 30, that "the routing table 260 controls admission of datagrams from source IP addresses on a first sub-network, such as site network 40, to destination IP addresses on a second sub-network". Accordingly, the '991 application also discloses that the source sends data packets to the router for redirection to a proxy server. Therefore, the source sends the information to the destination through the router without any knowledge as to whether or not that the data is being re-routed to a proxy server. The fundamental distinction between the present invention and the '991 application is that the '991 application is directed towards routing data packets from the source to the destination, such that the re-routing of the data to a proxy server is performed without "advising" the source. In contrast, the present invention receives a request to access a device from the client, determines a path to the device from that particular client, ascertains fire wall rules, and then redirects the client to an appropriate proxy, if needed, for that path by sending a redirect message to the client which informs the client of the address to which to redirect itself. The method of the present invention only enables the request by the client to communicate with (or transfer data packets to) the device after sending the redirect message. As such, the data is not transmitted from the client to the device until the method of step (e) is performed. Thus, the present invention is clearly distinguished from the '991 application in that the present invention does not permit the client to communicate with the device until a redirect

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message has been sent to the client. Thus, the method of the present invention is clearly not anticipated by the '991 application.

Applicant has also amended Claim 1 to more clearly define the present invention. Claim 1 now reads as follows:

"A method for providing a proxy service in a computer network, comprising the steps of:

- (a) receiving a request to access a device from a client,
- (b) ~~determining the a~~ path to the device,
- (c) ascertaining what firewall rules exist for that given path, and
- (d) ~~redirecting the client to the appropriate proxy, if any is needed, for that path- path, by sending a redirect message to the client which informs the client of the address to which to request itself, and~~
- (e) enabling the request received by the client to communicate with the device."

The Examiner's attention is drawn to paragraph [00016], of page 5, in the subject application which states: "the invention redirects clients to the device or proxy by using an HTTP redirect message which informs the client of the address to which to redirect itself" [underlined for emphasis]. It is clear from this teaching in the original Specification that the redirect message provided to the client redirects the client to either communicate directly with the device or indirectly through a proxy. Therefore, no new subject matter has been added.

As mentioned previously, another point of distinction is that the '991 application does not deal with the issue of IP address conflicts, such as in a larger business organization where two different business networks may be using the same IP addresses for devices. The present invention enables the client to communicate with a device regardless of IP address conflicts through use of appropriate proxy if necessary. This aspect of the present invention is also not disclosed in the '991 application. The '991 application discloses, at page 4, lines 16 to 25, "Data is communicated in the computer network between end-points... Each end-point, such as user terminal 140, is identified by

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a unique Internet Protocol (IP) address...each datagram comprises a header portion and a data portion. The header portion contains the IP address of the source of the datagram and the IP address of the destination of the datagram. The data portion contains the data to be delivered...". Based on this teaching in the '991 application, it is clear that the prior art apparatus requires that each destination have a unique destination address. The '991 application does not address the situation whereby there are IP address conflicts, as it is assumed that each destination address is unique and not in conflict with a destination address of another network, with "the IP address originally specified" as taught at page 5, line 37. This is in contrast to the present invention wherein the method of Claim 1 is aimed at dealing with situations where there may be IP address conflicts.

In view of the original teaching of the paragraph [00016], Applicant has also amended the Specification at page 4, paragraph [00012], to read as follows: "the master proxy then redirects the client to appropriate device, be it the device itself or proxy for the device to enable the client's request to communicate with the device". The amended language "to enable the client's request to communicate with the device" is clearly inferred from the lines preceding it in that the redirect message then permits the client to send data to the device, either directly or indirectly through a proxy. Again, the teachings of the present invention and Claims contrast the '991 application which discloses that data is sent immediately from the source through a router to a proxy server, and only arrive at the destination if predetermined criteria are satisfied. The '991 application does not disclose the provision of a redirect message which informs the client of the address to which to request itself being sent to the source prior to its sending data. Therefore, Applicant submits that the method of independent Claim 1 is not disclosed in the '991 application.

With respect to dependent Claims 2 through 6, 8 through 20, and 22 through 26, Applicant submits that these Claims are also patentable over the '991 application as they include the subject matter of patentable base Claim 1. Therefore, Applicant submits that

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Claims 1 through 6, 8 through 20, and 22 through 26 are patentable over the cited '991 application.

Applicant has also amended paragraphs [00010], [00026], [00028], and [00034] to correct typographical errors found in the Specification. Applicant believes that no new matter has been introduced by way of this amendment.

Conclusion

Applicant respectfully submits that the outstanding rejections under 35 U.S.C. 112 and 102 have been overcome by the above amendment. Applicant has made an effort to substantially eliminate any unclear details within the Claims and believes that no new matter has been entered during this process. Applicant submits that all of the Claims presently standing in the application are patentably distinguished from the teachings of all of the references of record either taken alone or in any combination. Accordingly, reconsideration and allowance of this application is respectfully solicited.

Should any further fees or payments be necessary for entry of this amendment and further prosecution of this application, the undersigned hereby authorizes the Commissioner to debit and/or credit our Deposit Account No. 16-0600.

Respectfully Submitted,

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